BORDER .S. - MEXICO ENVIRONMENTAL OGRAM

BORDER 2020 FRONTERA 2020

HIGHLIGHTS REPORT AUTUMN 2018

EPA United States Environmental Protection Agency

SEMARNAT
SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES

ESTADOS UNIDOS MEXICANOS

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MESSAGE OM TIONAL OORDINATORS

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Jane
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INTRODUCTION

Reaffirming itment, -2018.

The United States-Mexico border is a dynamic and unique geogra phic region facing many environmental challenges including poor air quality , unsafe drinking water and wastewater treatment, an d inadequate waste management p rograms and services. The border is home to over 15 million people where appro ximately 90% of the population resides in cities, while the remaining population is ound n mall owns r rural communities. The **Border 2020 Program** is the latest U.S. – Mexico environmental program implemented under the 1983 La Paz Agreement, focusi ng on communities 62 miles on either side of the 2000-mile border. The Border 202 0 Program encompasses a regional, bottom-up approach for decision making, prio rity setting, and project implementation to address the environmental and public hea lth challenges in the border

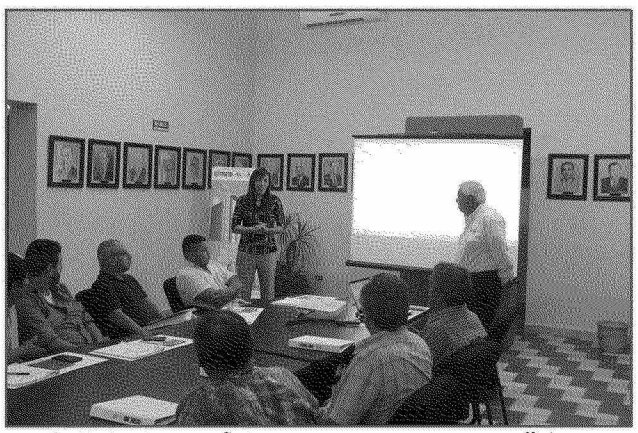
The Program is designed to draw from communities and local sta keholders, as well as work directly with federal, state, tribal and internati onal partners to implement environmental projects and solutions. Specifically, the fr amework and goals focus quality, ng trengthening - ness and response, fostering environmental stewardship and advocating for environmental health initiatives along the U.S-Mexico Border. This Acc omplishments Report shares election f ur rogram uccesses n he ast ouple of years (2016-2018) to improve hance

Program, we invite you to read the Border 2020 Framework Docume nt and/or if you are interested to know the accomplishments of the Program in it s first 4 years, please visit the Bo der 2020 hompage at: USEPA and/or SEMARNAT, web pages to see past Accomplishments Reports

IMPROVING AIR QUALITY

Poor air quality can have significant community economic and social impacts, including increased illness, premature death, and lower quality of life. The U.S.-Mexico border region is vulnerable to the transboundary movement of pollutants between the two nati ons, iaduding inhalable parti culate matt er (soot and dust), ozone (smog), and carbon monoxide. Contributi ng binati onal sources ncluc dust from unpaved roads and open areas, smoke from illicit burning f rash nd ti res, nd obile sources such as heavy freight vehicles, private owned cars, and trucks idling at border crossings. The Border 2020 Program has supported mproving ir uality y xpanding monitoring networks with increased data access, improvement of air quality through State Implementati on Plans (U.S. an Mexico) ty ti onal

Energy fficiency orkshop amaulipas



Parti cipants first fficiency.

Increasing energy efficiency in Mexico has ecome trategy t ll evels f overnment to improve and build long-term sustainability within their public buildings and enhance security of their energy supply while minimizing the impact to the environment. The operation and installations of public lighting systems and the consumption of energy in public buildings represents one of the greatest expenses faced by municipalities, sometimes reaching up to 40% of their costs. This factor limits the ability for local governments to focus on other priorities and efforts. Through a Border 2020 Program ' Ministry of Urban Development and Environment held two training workshops on energy efficiency to 10 border municipalities within the state. The workshops' materials provided information on the basic tools needed to achieve greater energy efficiency in lighting public spaces, thus increasing

The orkshops ere art f eries f actions to improve energy efficiency in the state, including two energy forums: "First State Energy Forum: Tamaulipas, Energy that moves to Mexico" and the third International Congress on Renewable Energies: "Perspectives of Energy in Mexico." Coinciding with the Border project, the State launched a demonstration wind project, which included the start of operations of four wind turbines with the aim to promote the use f enewable nergies ithin he tate. The State also distributed over 10,000 booklets, "Practical Guidelines for Energy Savings," to help raise awareness in communities on the benefits of installing environmentally friendly technologies in their homes. As a result of these workshops, 10 municipalities committed to carrying out an energy audit in their buildings,

Healthy esilient ez,

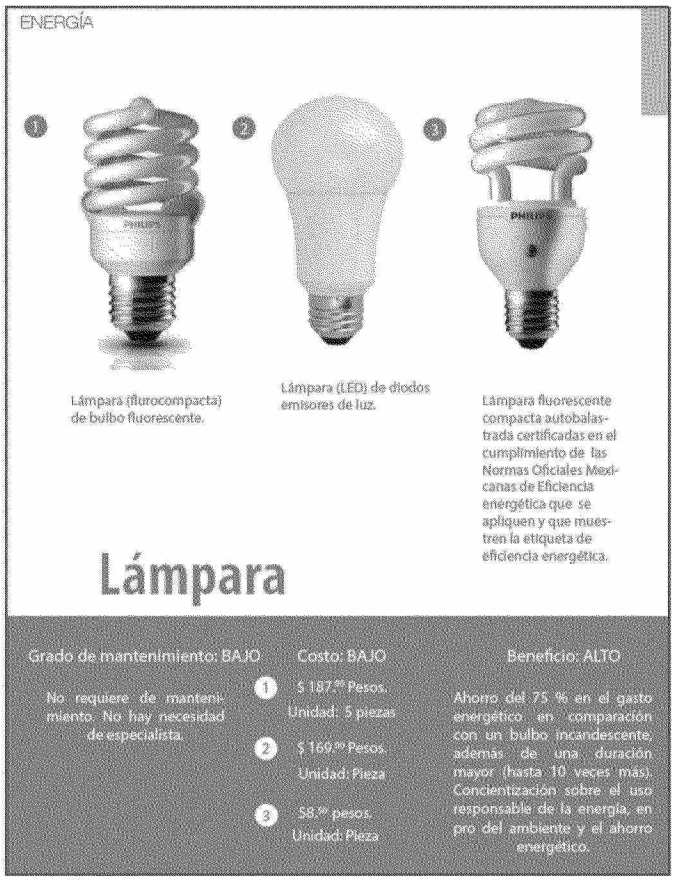
Low-income families often have limited resources to implement energy and water saving measures in their homes. This is often due to either a lack of knowledge, technical assistance, or financial resources. The lack of access to nancing o elp et heir conomic eeds, limits access to clean energy technologies and services. The Mexican not-for-profit Federation of rivate ssociations f ealth nd ommunity *Salud sarrollo munitario de Cd. Juarez, A.C.* FEMAP]), as een perating a Micro-Credit Program in the region for more than 30 years, during which time it has granted more than 40,000 small loans to low-income

With the support of the Border 2020 Program,
and implement green infrastructure and energy saving elements to low-income families looking to improve their homes within a rapidly growing area of Ciudad Juarez. The project offered technical and financial assistance to 50 homes (over 200 persons) implementing these energy efficient materials and strategies. In coordination with academic, non-profit and private business, he esidents ad ccess o echnical xperts who guided and educated them on green infrastructure elements that could be incorporated and adopted by them, as well as, access to -friendly

The project resulted in an energy cost savings of $630 or 11.249 Kw/hr and water savings of 140,000 gallons of water or $500 following improvements of the 45 of 50 homes by installing:

- over
- 200
- 50 -flow
- 50
- XX

In addition to the improvements made directly o heir omes, atalog f co-materials was developed with the support from the Architecture Program from the Autonomous University of Ciudad Juarez. This catalog includes information on best practices and an evaluation -gies, identifying those that are viable for implementation in marginalized communities with older housing since the existing catalogs are mainly



Illustrati on. ti on g.

Can't get #'s. so just leave as a description

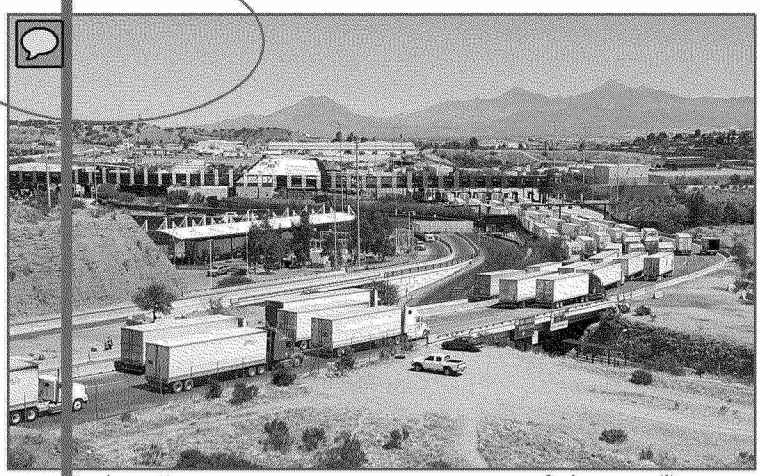
Quantifying eduction om educed Wait ort try

The Mariposa Port of Entry (POE) in Nogales, rizona s n mportant and ort n the -Mexico - cle crossings per year, including 350,000 truck crossings. The POE is piloting an innovative program to conduct joint inspections with United States and Mexico inspectors in order to reduce commercial truck wait times at the Arizona-Sonora border. This pilot program is expected to ignificantly educe ait imes, rom ours to 1 hour, for northbound cargo trucks. This reduction in wait times will reduce emissions from idling vehicles and accelerate commerce. Nogales, Arizona, is currently in non-attainment for PM_{10} and $PM_{2.}$ U.S. regulations, which can cause respiratory and cardiac effects, especially in older adults and young children. The emissions improve air quality and public health in the region.

The North American Research Partnership to study the amount of emission reduction benefits from this pilot project. Over 400 vehicles were surveyed for information about wait times and vehicle make and model, which allowed researchers

Survey ft er ti on.

EPA's Motor Vehicle Emissions Simulator (MOVES), a modeling system that estimates emissions for mobile sources at the national, county and project level for criteria air pollutants, is being used by researchers to quantify emission reductions from border wait times. Preliminary data shows that decreased wait times have reduced emissions from idling. In addition, reductions are occurring because vehicles processed through the Unified Cargo Processing Facility tend to be newer and are built with more emission reduction technologies. ~~The North American Research Partnership~~ is currently working on data analysis of the surveys and emission reduction quantification and the final



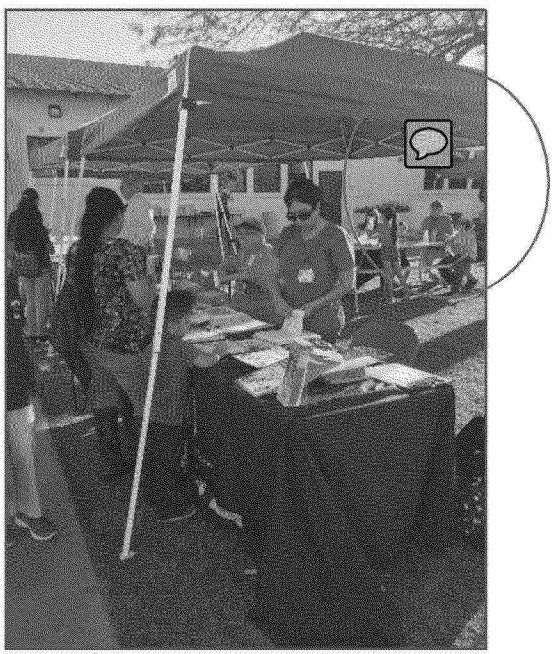
Trucks ti ng fied acility.

Reducing thma riggers or en through -home entions

The children of Imperial County, California, are living with high concentrations of asthma riggers n he ndoor nd utdoor nvironment, including cross border air pollution. These factors have contributed to Imperial County experiencing some of the highest rates of -nia.

> *I enjoy educating parents of asthmatics on what they can do to improve their home environment, such as introducing them -toxic eaning*
>
> Rubi
> Community *Promotora)*

To address this issue, the Border 2020 Program has partnered with and funded the Imperial Valley Child Asthma Program (IVCAP) from 2015-2017 to conduct in-home asthma interventions with workers on implementing healthy homes strategies. During this period, 94% of participants enrolled in the program reported no ER visits or hospitalizations. In addition, IVCAP reached over 2,000 people through outreach and education, program enrollment, and other community engagement



One
Imperial

EPA continues to support and positively impact low-income families by funding in-home asthma interventions to IVCAP by a Clean Air Act asthma grant. The 2017 funding has a goal to provide in-home environmental asthma assessments and tools to manage asthma triggers for families and children 17 and under. These home environmental observations will be carried ut y *promotoras*, or community health workers.

To date, IVCAP has enrolled almost 90 additional asthmatics into their program with 80% of them reducing, avoiding, and/or eliminating two or more triggers identified after IVCAP's home environmental assessment. Families received tailored interventions for their unique

By the end of this 2017-18 effort, IVCAP hopes to reach up to 70 families and to conduct in-home asthma interventions. These interventions will decrease ER visits and hospitalizations. In addition to in-home visits, IVCAP will raise awareness by conducting outreach and educating residents living with asthma on the benefits of improving the indoor home environment to maintain long term control of asthma. For more information on asthma and environmental triggers, please visit: www.epa.gov/asthma.

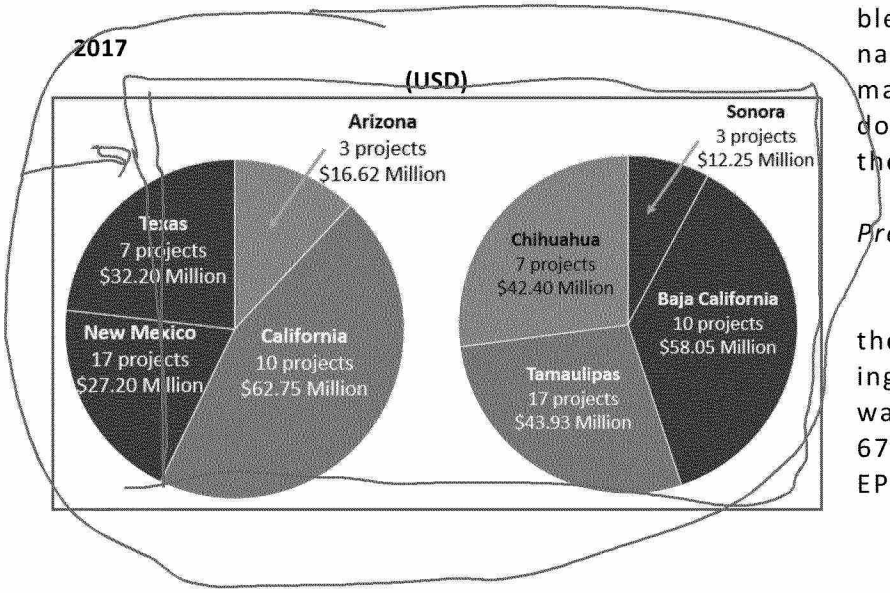
ENHANCING WATER QUALITY

Rivers undaries fine ed stormwater and sewage from deteriorated infrastructure and extreme weather events can contaminate transboundary waterways, causing health concerns along the border region. The Border 2020 Program has improved water quality through the financing of stormwater miti gati on or management demonstrati on projects, uch as green infrastructure, solid waste reducti on programs and research. Funds from the related Border Water Infrastructure Program (BWIP) have been used both to e.

U.S.-Mexico ater astructure ogram

The Environmental Protection Agency's U.S.-Mexico Border Water Infrastructure Program (BWIP) funds the planning, design, and construction of high priority water and wastewater infrastructure along the U.S.-Mexico border. BWIP assists disadvantaged communities in identifying and securing available funding sources and addressing funding gaps o nsure ccess o afe rinking ater and dequate anitation, ften or he irst time.

BWIP provides hands-on management and technical oversight for communities lacking technical and managerial capacity that can then complete project planning and design requirements, increasing funding opportunities for construction assistance from other programs, such as Texas' Economically Distressed Areas Program, the State Revolving Fund, United States 's Development Water and Environmental Programs, and the North American Development Bank



Rivers along the U.S.-Mexico border sometimes naturally define the international boundary like the Rio Grande or flow from Mexico nto he .S. uch s he ijuana iver. rojects funded under the BWIP address transboundary sewage discharges between the two countries. Treating raw sewage at the source before it enters shared border water bodies is the - ble option to prevent transboundary contamination. As part of this partnership, Mexico matches EPA's project's investments dollar for dollar, which helps protect public health and the

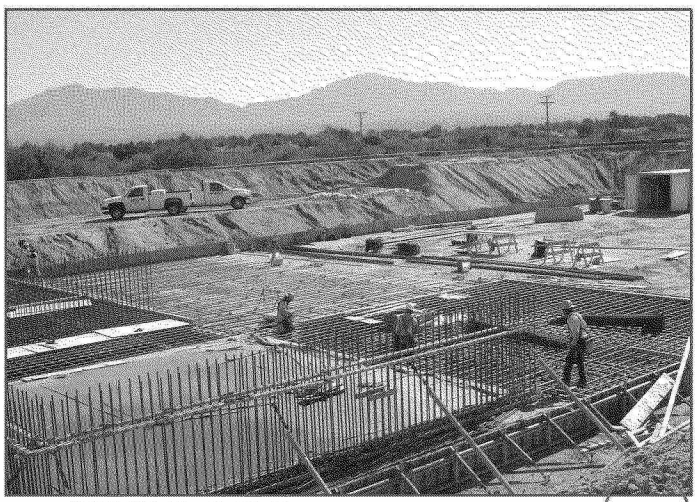
Program

Since 108 the program has provided access to safe drinking water to 70,000 homes and first-time wastewater collection and treatment to 673,000 homes. In 2017, through the NADB, EPA announced a new project application cycle

for BWIP funding. This identified over 60 eligible drinking water and wastewater projects with onstruction million that address public health and environmental conditions along the U.S.-Mexico border.

Building technical and managerial capacity at Sunland Park, New Mexico through partnerships.

The construction of a new treatment plant in Sunland Park, a small and disadvantaged community in New Mexico, started in August ional - ty (CRRUA), the local wastewater utility, struggled with inadequate and aging infrastructure, environmental compliance, and lack of managerial capacity and resources. For close to two years, PA, ew exico nvironment epartment (NMED) and NADB, worked closely with CRRUA to implement a capacity building plan to ensure CRRUA could effectively manage a new wastewater treatment plant. EPA provided more than $816k to implement this plan and technical assistance for project planning and design. The plan was successfully implemented; EPA and NMED then funded the construction of a $12.7 million treatment plant. EPA contributed - tional $3.7 million in state funding. The treatment plant will improve access to sustainable wastewater treatment services to approximately 6,440 residents of Sunland Park and Santa Teresa and will greatly reduce the risks of untreated - charges.



Constructi on ti viti es

CRRUA's board chair, Josh Orozco, stressed the importance of finally being able to provide adequate wastewater treatment capacity in the community. During the July 2017 groundbreaking ceremony, he said this new plant "…will not only allow more homes and more businesses to be helped, but will also improve ”

Protecting the Tijuana River Watershed from transboundary

The - ifornia, Mexico, crosses the U.S.-Mexico border in San Ysidro, California, and empties into the Pacific cean ust outh f mperial each, alifornia. Discharges of raw and poorly treated sewage in Tijuana can impact the economy, health, and environment of U.S. communities like Imperial Beach and Chula Vista in San Diego County. -stakeholder - term effort to address these transboundary spills, a BWIP project is underway to repair some of the deteriorating wastewater collectors. These collectors carry sewage from households to the Tijuana wastewater treatment plant. If these collectors are not repaired, catastrophic collapses could occur, resulting in hundreds flowing beaches. The existing partnership between EPA and Mexico’s water agencies, provided $7 million for the repair of more than 6 miles of sewage collectors and rehabilitated 30 manholes. A second phase for the construction of 2.5 miles of additional sewage lines is underway. The estimated cost of this project is $3 million with a projected EPA contribution of $1.4 million.

Fat, ease each
Campaign ownsville

The Brownsville Public Utilities Board (BPUB) was awarded a grant of $25,000 ~~USD~~ from the Border 2020 Program in February, 2016, to provide outreach and education on the impact
water quality to the communities in Brownsville, Texas; and Matamoros, Tamaulipas. Historically, t he PUB, OG esidential nd ommercial service calls occurred on average five times a week, with increased occurrences during

BPUB entered a voluntary reduction program with the Texas Commission on Environmental Quality (TCEQ), Sanitary Sewer Overflow Initiative. This voluntary program requires BPUB to work on reducing unauthorized discharge of untreated or partially treated wastewater from the collection system or its components (e.g. manhole, lift station, or cleanout) before reaching a wastewater treatment facility as a result of FOG issues. Through educational campaign efforts to both the general public and to commercial establishments, the BPUB aimed to reduce the number of FOG related service calls and bring awareness about the proper disposal techniques in dealing with Fat,

Marketing

On March 16, 2016, the BPUB officially kicked-off its "Fat, Oil and Grease" public outreach
Brownsville. During the public meeting, they announced their collaboration with the City of Matamoros n he ew OG utreach rogram. BPUB reached communities from both sides of the border through a number of activities that included advertisements, educational fliers, ad videos, workshops, and press coverage. Social media platforms such as Facebook, Twitter and YouTube were also utilized to target younger audiences and share the educational video and audio -
out the project period, over 80 public outreach events and trainings with over 1,700 participants were conducted to the public in apartment and housing complexes, churches and educational institutions, as well as, commercial business.

More importantly, the BPUB through its outreach efforts has consistently been reducing the number of FOG service calls from 731 in 2013 to 417 in 2016, a 43% reduction in just four years. During the project period, in 2015 and 2016, the BPUB received 477 and 417 ser-

Public

vices calls related to FOG pollutants, respectively. verall, he roject et ts bjectives, including reducing the number of FOG related calls 3% r 0 alls. o ontinue o earn ore about BPUB's FOG efforts please visit its web page.

Building astructure Valle venue

The border region of El Paso and Juarez lacks urban green spaces, especially in Juarez where is estimated to exist only 4.5 m^2 of green area per inhabitant while the World Health Organization (WHO) established a sustainability indicator where 9 m^2 of green area per inhabitant should exist. Since 2013, Juarez has actively been partnering with various organizations to increase green infrastructure and expand green spaces throughout the city. These projects not only can be cost-effective but can address flooding issues associated with a lack of storm-water
high

In 2016, the Border 2020 Program helped fund the rehabilitation of a park situated n alle el ol venue nd olares treet. Located ver alf ile rom he .S.-Mexico boundary, the park is the only green space in the area available to the community. Over many years, the park had heavily degraded due to ack f aintenance nd o onger erved as n rea here he ommunity embers could gather. The Instituto Tecnológico de Ciudad Juárez (ITCJ), the promoter of the project, transformed the park back to a usable space for community members, but also addressed flooding
events.

Passive ti ng

With funds granted by the Border 2020 Program, he TCJ eveloped his roject ith the

- Establish passive rainwater harvesting systems;
- Conserve
- Protect
- Incorporate and take advantage of the existing

The project began in June 2016 with the cleaning of the site and the reconditioning of the sidewalk, the construction of passive systems or ainwater ollection, s ell s he ecovery and reconfiguration of existing vegetation. The amount of rainfall monitored from July 2016 to November 2017 (17 months) captured a total volume of 472, 502 U.S. gallons of rainwater.

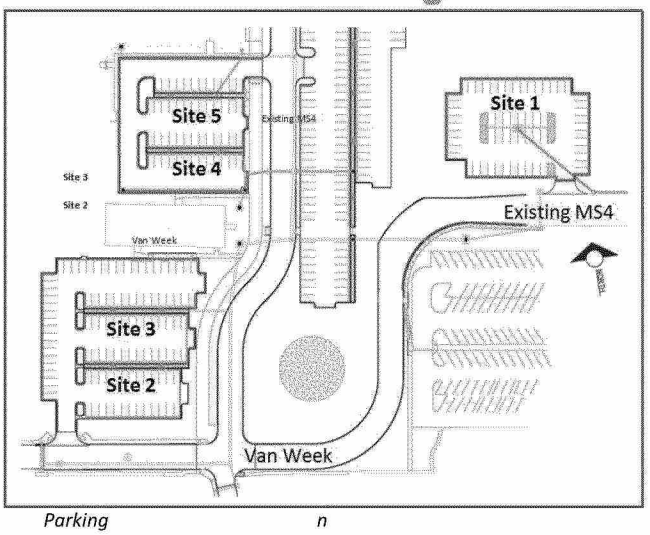
Presently, the passive water collection systems continue to function effectively and the park
almost ntirely ith ainwater xcept n ases of xtreme ater tress r or he nitial upport

Thanks to a donation from the municipal authority, he ark oil s rotected rom ind erosion by a walnut shell cover which allows any

Finally, surveys conducted in the area showed hat he ocial alue f he ark ncreased substantially. Before the project, the space was viewed as a negative area within the community nd s ow een s sable ocial gathering

Determining ale orous terial for exas ormwater

A number of communities in the Lower Rio Grande Valley in southern Texas have been evaluating various Low Impact Development (LID) methods to incorporate into their communities. provides - ditional management practices as: reducing or eliminating the need for large retention ponds; decreasing pollution to receiving waters; lessening erosion; more visually appealing within the community; flexibility in the layout of projects; and lowering cost. A research of Ho, f he niversity f exas io rande alley (UTRGV), valuated he se f ioswales n parking lots to determine the best performing locally available bioswale porous media material as well as design a standard that could be used by communities in the region. Bioswales are generally designed to manage runoff from large impervious surfaces such as parking lots and incorporate engineered porous soils and/or other landscape elements to remove debris and pollution



Parking *n*

BIOSWALE

DRAINAGE

ampling Sites	Bioswale	Porous	Drainage (acres)
Site	No	No	.237
Site	Bioswale	Pumice	.216
ite	Bioswale	Manufactured	.218
Site	Bioswale	Recycled	.209
Site	Bioswale	Natural	.206

Building on previous studies Dr. Ho conducted, his team evaluated five testing sites that utilized various bioswale porous media (no bioswale, pumice, manufactured sand, recycled crushed glass and natural sand) in parking lots on

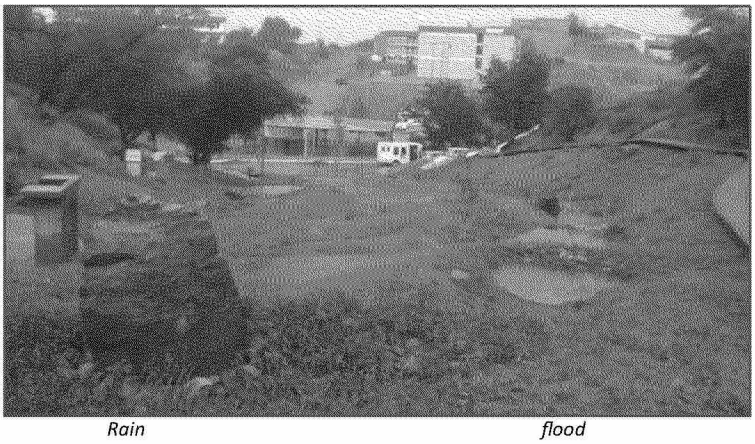
The roject valuated he ydrological performance of the four different materials used at the five testing sites. Field testing indicating, Site 2 with the Pumice material, showed the best hydrologic performance taking into account the four decision criteria of runoff volume reduction, peak flowrate reduction, peaktime attenuation, and runoff solids filtration. Pumice showed the highest filtration of the materials with 58% and a peaktime attenuation of 64%.

The soil column test results show that any mixtures containing pumice more than 40% of the volume produced promising results. Three 40% pumice mixtures (with manufactured sand, natural sand, and recycled crushed glass) achieved 30% of specific retention and 52% of filtration

Overall, based on the field testing, pumice performed the best of the bioswale porous medias, with testing showing that at least 40% pumice material mix is the ideal material for this egion. owever, t hould e oted hat further studies need to be conducted to consider
project construction to determine the overall practicality

Green astructure or trol and otection ales

The International Outfall Interceptor (IOI)
sewage from Nogales, Sonora, and Nogales, Arizona (Ambos Nogales) to the Nogales International Wastewater Treatment Plant nine miles north of the border in Rio Rico, Arizona. Since the n
as a combined sanitary-stormwater conveyance, over the years sediment inflows and infiltration of stormwater in Sonora have caused failure of the IOI in Arizona. Erosion (scouring) from the sediment has weakened the conveyance system resulting in breaks in the IOI, most recently in July 2017, leading to sewage spills into the Nogales Wash. Repeated failure of the IOI could result in contamination of Arizona groundwater resources.



Rain flood

The Watershed Management Group (WMG), -based -profit,
2020 Program funded project to demonstrate the potential of green infrastructure (GI) to diminish the amount of sediment during flood events hat s couring he OI. reen nfrastructure, according to EPA, uses vegetation, soils, and other elements and practices to restore some of the natural processes required to manage water and create healthier urban environments. The project used a three-pronged approach

- Capacity building (community trainings in planning, design and implementation activities);
- Demonstration sites (two projects for sediment
- Policy development (resolution to expand and strengthen GI practices in Nogales, Sonora).

Working with local government and Nogales, Sonora, residents, WMG completed two demonstration sites covering close to 10,000 m^2, imilar o he rea f arge occer field. In addition, 88 residents attended a training and over 500 community members were informed about green infrastructure concepts via community events and project participation. One demonstration site is a rain park that now harvests a volume of 50,000-70,000 liters of rainfall per rain event. These GI modifications will nearly eliminate the park's contribution to flood events downstream in the Ambos Nogales area.

The project attracted support from a Nogales
also on the State of Sonora Commission for Energy, Environment and Climate Change. This project moved beyond the local level, spurring the Sonora Congress to adopt a green infrastructure law in April of 2017, the first of its kind

This project increased community capacity to use green infrastructure to reduce flooding in the Ambos Nogales area and prompted the local government to support future green infrastructure

Protecting Resources

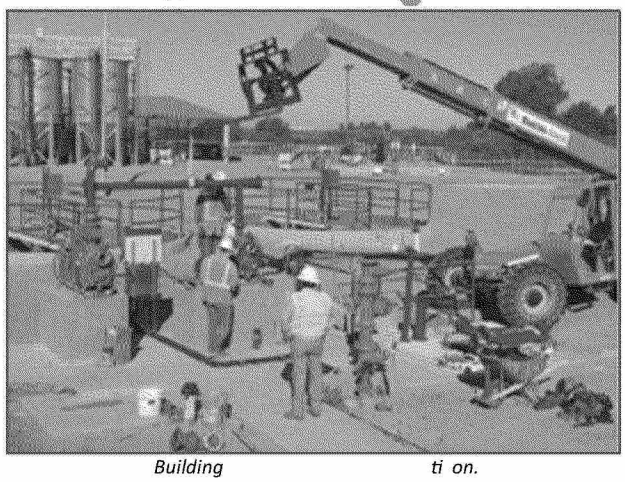
Located in Imperial County, the City of Holtville's wastewater treatment plant (WWTP) was not meeting discharge requirements for ammonia and other pollutants that were flowing nto he ear rain, hich eeds he lamo River and ultimately the Salton Sea in southern California. Thanks to funding from EPA's Border Water Infrastructure Program and the State of California Clean Water State Revolving Fund, the existing WWTP was upgraded and now provides wastewater service to 100% of the service area

Already considered an impaired water body, the polluted discharges from Holtville exacerbated the treacherous conditions faced by wildlife and plant communities living in the Salton ea. ver he ears, ater evels n he alton Sea have dropped rapidly due to evaporation and have increased salinity and pollutant concentrations. The exposed lakebed has succumbed
dust onto the surrounding communities. These dust particles may contribute to asthma attacks throughout Imperial Valley. The Holtville WWTP that now meets discharge requirements will not only increase the chances of survival for the various organisms dependent on the sea, but the influx of properly treated water will keep dust from being exposed to the wind and away from

EPA is committed to helping communities across Imperial Valley protect the state's vital water resources. Our investments renew aging infrastructure, which can be costly for smaller communities like

Tomas
Water
U.S.

's ater ty, ornia



Building ti on.

Some
the Holtville WWTP include an automatic bar screen that maximizes the removal of large objects and an activated sludge system enhancing treatment effectiveness and improving the quality of the effluent. A rehabilitated operations building within the treatment plant was also quipped ith odern ab quipment, nsuring that tested effluent meets discharge requirements.

PROMOTING CLEAN LAND

In e .S.-Mexico rder egion, olid aste nagement as t kept increasing ti on, resulti ng in unmanaged trash and overburdened waste services and infrastructure; as well as potenti al valuable materials bei ng lost in landfills or illegally dumped. Poorly managed waste contaminates land and adversely public health such as creati ng fire hazards con tributi ng to poor air quality or erving as breeding habitats for mosquitos and the potenti ally spreading of vector-borne diseases such as Zika. Sustainable Materials Management (SMM) promotes a life cycle approach which begins by opti mizing design to final production of goods and services to reduce waste, eliminate toxicity, and maximize reuse. The Border 2020 Program partners have advanced SMM through clean-ups and projects to recycle household hazardous waste, electronics and scrap ti res.

Supporting o ecyclers.

Every year vehicles are stockpiled along the U.S.-Mexico border when they reach the end Often, vehicles have not been processed properly to recover dispose of hazardous materials these vehicles have. As the discarded vehicles are piled up, they ecome n yesore o he ocal ommunities and pose a risk to human health and the environment. The vehicles often contain hazardous materials like antifreeze, used oil, or lead and when abandoned, they become a liability

In response to address the needs of auto recyclers n he order egion, .S. PA nd SEMARNAT have produced an End-of-life Vehicle uide Guide). he uide as reated o share effective practices for preparing an end-of-life vehicle so that the vehicle can be recycled properly and contribute to the U.S.-Mexico Border 2020 Program's goal to reduce waste through the safe and responsible recovery of materials.

The Guide and other materials form a packet comprising the guide, a set of quick reference a inform handling facilities and technicians on prepping the vehicles for processing in an environmentally sound manner. Additionally, the Guide discusses responsible disposal, cost recovery, health, safety and security, industry standards, and a listing of vehicles containing mercury

Specific waste streams that pose a high risk to workers and the environment are highlighted in the Guide and on a set of waste cards complete with diagrams. Waste streams include: lead, mercury switches, refrigerants, waste batteries, waste fluids and waste fuel. Overall, he uide rovides aterials hat echnicians can use to dispose of old vehicles using environmentally

EPA and SEMARNAT will work together to disseminate the folders to the relevant stakeholders along the border region in fall 2018. All materials are available in both English and

Scrap es aste along .S.-Mexico

The Border 2020 Program has aimed at building a more sustainable, integrated approach waste to minimize and reduce the impact to the environment and improve public health. However, in a geographic region where population, socioeconomic conditions and environmental regulations can vary significantly, different border communities have had to take varying and creative approaches to build sustainable communities.

City

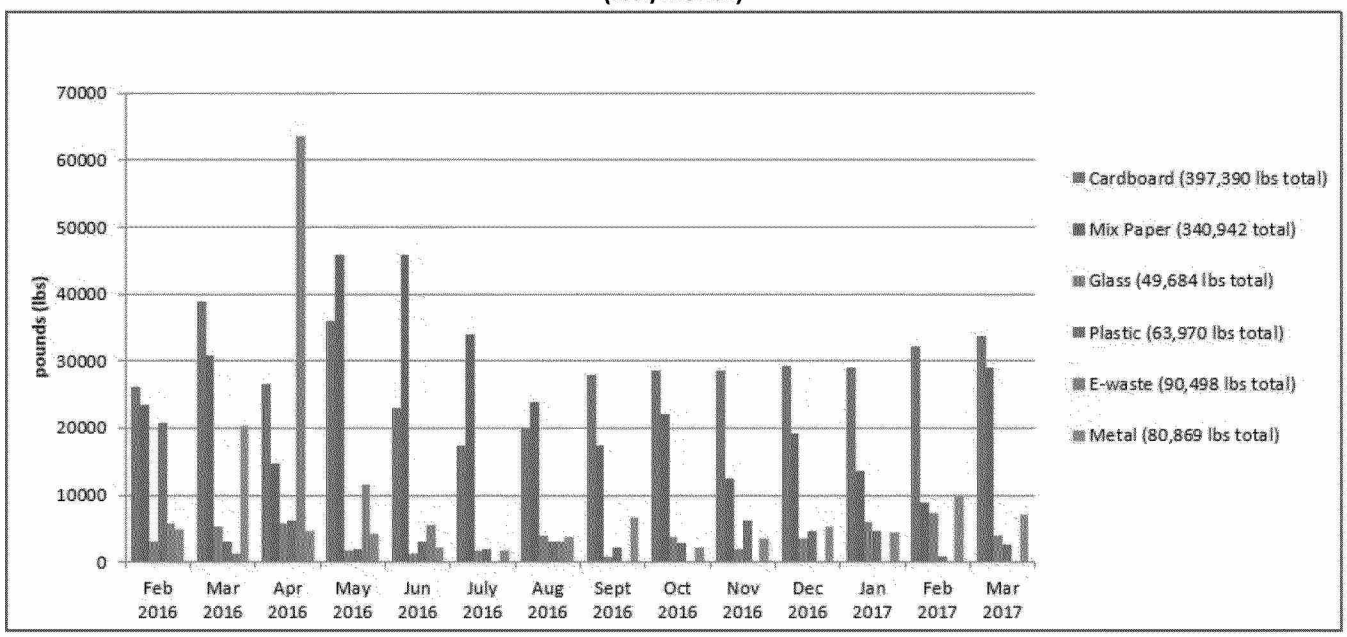
Over he ears, he ity f harr as mplemented greater sustainability tools within the Public Works Department to make the city one f he leanest n he ower io rande Valley. In 2016, Pharr received a Border 2020 Program grant for $36,000 USD to continue improving their recycling and education efforts within the community to reduce the city's dependency -munity. Over a 14-month period, the city collected:

- Over
- 60
- 1,023,353 lbs. of recycled material diverted

Staff launched a bilingual public education campaign of the city's recycling and sustainability efforts, stormwater pollution and illegal dumping of scrap tires, through social media, brochures, public service announcements and over 100 outreach activities (20 meetings, 40 events, 50 presentations). The project also increased recycling efforts in some Pharr schools by promoting an environmental education contest and providing 75 recycling bins for school classrooms and dozens of 95-gallon recycling bins within the school district. To earn ore bout harr's ublic ork epartment and their efforts, please visit its web page.

RECYCLABLE **RR,**

(lbs./month)



Valle

In 2014, the state of Tamaulipas passed legislation hat utlined ts rogram or ntegrated Waste Management and Prevention. Within his rogram, ased n actors uch s population growth and solid waste generated per capita, the state prioritized municipalities where it was vital to establish a municipal integrated waste management and prevention program. It also outlined specific strategies and actions that these municipal plans should address including short, medium and long-term implementation as well as associated costs. The implementation of the municipal plans is done in three phases: conducting a diagnostic of current conditions; adoption by the municipality of their plan; and finally implementation, monitoring

The tate ecretariat or rban evelopment and Environment in Tamaulipas (*Secretaría de Desarrollo Urbano y Medio Ambiente* [SEDUMA]) received a $20,000 ~~USD~~ grant from Program assist municipalities of *Valle Hermoso* and *Rio Bravo* complete their diagnostic study on local waste management. The diagnostic study, which took place -month

- Current operations, staff, equipment, solid aste ollected nd lassification f waste;
- Specific strategies recommended to be implemented over a short, medium, long-term
- Costs associated with implementation of strategies
- Monitoring
- Potential

On August 22, 2016, SEDUMA presented both municipalities with the diagnostic assessment f heir urrent aste anagement ystem. In March, 2017, *Valle Hermoso* officially published and registered the diagnostic assessment ith he tate, oving nto he hird phase. Next steps include the municipality of Rio Bravo's city council approval of the assessment

TOTAL

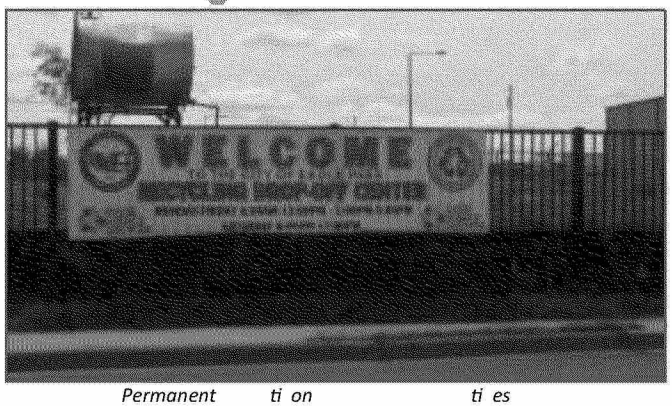
VALLE ***RIO*** **,**

Strategy	Total lement (USD) Rio	Valle
Management/Operati ons	$4,776,923.00	$1,296,428.00
Recycling	$1,648.00	Not
General	Not Community	$10,989.00
Public ti on	$16,373.63	$17,032.00
Private ti cipati on/Partnerships	No	Not mmunity
Insti tuti onal	$155,495.00	$122,527.00
Finance/Legislati ve	No	Not mmunity

Addressing tional llenges onic aste Texas

Rapid advancements in technology and the use of electronics by consumers mean that electronic products quickly become obsolete and are disposed. Unlike other recyclable materials, electronic waste (e-waste) s ot s asily recyclable due to the toxic metals (lead, mercury, cadmium and arsenic) found in them. The challenge with recycling e-waste is often improper disposal in local landfills and the lack of infrastructure in communities to properly support

In 2016, through two Border 2020 Program rants, ne o he ecretary f nvironment f he tate f oahuila *Secretaría de Medio* nd r en Tec-osos, an environmental group within the Technological Institute of Piedras Negras (*Instituto Tecnológico de Piedras Negras*), e-waste recycling projects were launched in the communities of Ciudad Acuña, Piedras Negras and te Pass, Texas. These projects aimed to prevent the e-waste generated in the municipalities from being illegally dumped in the Rio Grande riverbed, around the Amistad Dam, as well as in streams, region. They also informed and educated the community about the benefits of reusing electronic



Permanent ti on ti es Public

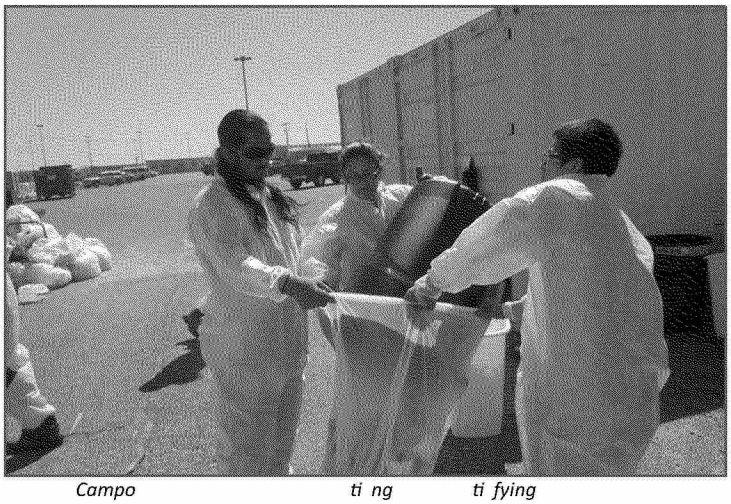
To - manent e-waste collection centers were established among the four communities. Through community events, the projects yielded the collection of over 113 tons of e-waste. In addition, with the assistance of over 60 partners through workshops, trainings and media outlets, residents were educated on the positive impacts of recycling lectronic aste as n he nvironment.

COLLECTION
FEBRUARY, - MARCH,

Type ti on	E-waste (tons)	Residents
22 Negras	32.22	45,000-50,000
Schools Nava ti es	8.83	5,500
Businesses	5.56	2,500
Eagle	14.83	28,765

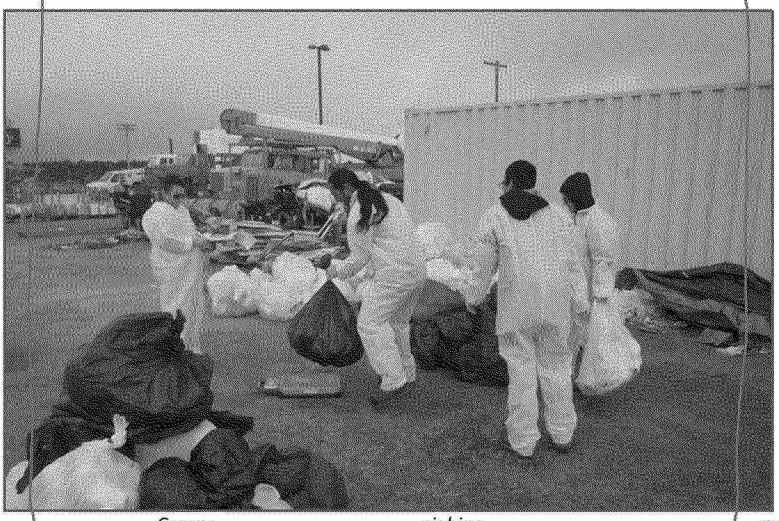
Campo ances ero aste actices.

In the border region, unmanaged trash causes potential transboundary impacts such as impairing water quality, clogging streamflow, and creating habitat for disease vectors. In 2015, the Campo Band Tribe, located in California, raised concerns about transboundary solid waste issues to representatives implementing the Border 2020: U.S.-Mexico Environmental Program. In 2016, the Program provided funds to onduct olid aste ssessment nd repare a zero-waste plan. The zero-waste plan lays he oundation or eveloping ero-waste program, etting oal o ignificantly educe waste and establish diversion practices to eventually



Campo ti ng ti fying

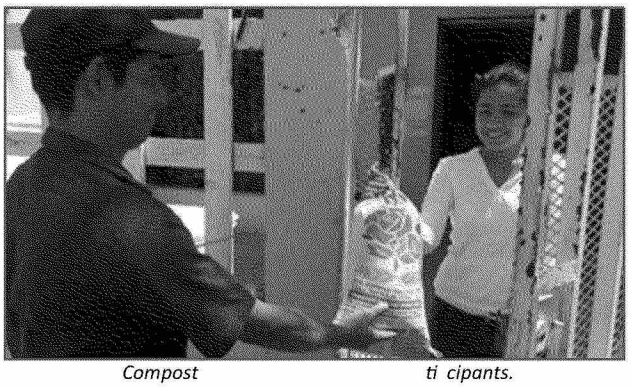
The zero-waste plan was completed in January 2018. Along with the recommendations in this plan, the Campo Band is actively exploring other materials management activities including short and long-term goals to develop a self-sustaining waste and recycling program and transfer station. This plan was an important first-step/tool for the Tribe to accomplish their solid waste goals and improve the Tribe's and border region's health. The Campo Band continues to leverage other resources such as EPA's General their solid waste goals, creating practices that makes sense for their community, and using the zero-waste lan s aluable ool o ccomplish their needs. The Campo Band Tribe is estimated to be funded by GAP for $18,000 USD for the Fiscal Year 2019 to continue to move forward -waste



Campo eighing

format to fit column?

Composting erts aluable ganic om



Compost ti cipants.

Compost is a valuable resource made from food waste, landscape cuttings or other organic material. However, based on the 2018 study "Characterization and Management of Organic Waste" released by the Commission on Environmental Cooperation (CEC), organics in the U.S. and Mexico are predominantly sent to landfills. The Border 2020 Program has worked to increase diversion rates, estimated to be 32% or he .S. nd % or exico, y orking with overnment, cademic, on-profits, nd industry stakeholders to improve the management - es 's food

In 2012, the Border 2020 Program awarded the organization "*Tijuana Calidad de Vida*" a grant resulting in the first border municipal landscape compost pilot program that produces compost and educates future composters. In 2016, EPA Region 9's Environmental Finance Center funded a grant to identify compost niche markets in Tijuana for businesses needing o chieve aste eduction oals or their corporate social responsibility ratings. In 2017, the Colegio de la Frontera Norte (COLEF, by its acronym in Spanish) conducted a pilot program working with nearly 120 households in Tijuana and training them in a total of 27 workshops. This resulted in the diversion of 10,067 kg of household food scraps. The compost created was used at Eco-parque, a campus program to model and teach sustainable practices and 107 sacks of compost were donated to household participants. The findings of these grants n 's

On June 13, 2018, the University of Arizona (UA) Compost Cats celebrated the award of a $91,000 USD grant from the Border 2020 Program to establish the Santa Cruz County (SCC) ompost enter, uch-needed lternative to landfilling waste produce. Nearly 3,000,000 tons of produce crosses the nearby Mariposa-Nogales Port of Entry, one of the busiest land crossings along the U.S.-Mexico border, ound arkets ross he nited ates each year. About 8,000 tons of waste produce are generated yearly, equivalent to two dump trucks er ay or n ntire ear, nd s hen disposed of in the Rio Rico Landfill. The new SCC compost center will offer both environmental and economic benefits to the region (Press release for compost-center). In its first year, SCC Compost Center will compost 3,000 tons of waste produce, creating 9,000 cubic yards of compost.
covered ith ne oot f ompost. he oal s to ns

The SCC Compost Center will be modeled after the successful UA Compost Cats program in Tucson, which not only composts but works with local food banks to divert good food from campus to hungry people. In 2015, their work was acknowledged with EPA's "Food Recovery Challenge" award for reducing food waste on the UA main campus and in the City of Tucson. Similarly, the SCC Compost Center will serve as an agricultural learning center for high school and college students and recover this valuable resource from taking up space in

STRENGTHENING EMERGENCY PREPAREDNESS AND RESPONSE

Recognizing that chemical hazardous events and other environmental emergencies, regardless of an internati onal border, can threaten both local and binati onal communiti es, U.S. and Mexican partners conti nue to work together to ahance preparedness and response for internati onal emergencies. The Border 2020 Program and partners support binati onal training, exercises, essenti al equipment and emergency plan updates, which have increased communicati on and esponse capability. Together, they of y

Binational raining educes Impacts der

The Border 2020 Program had allowe o strengthen the cooperation between federal, state and local agencies on both sides of the border to provide exercises and training as well as to ensure that first responders have proper personal protective gear to respond safely and effectively. Since - fighters, emergency management officials, police, military, industry representatives, medical staff and other relevant community leaders have received training through: 153 training courses, 32 binational exercises and 245 drill notifications between the U.S. and Mexico throughout the Arizona-Sonora and California-Baja

Firefighters fire.

Getting equipment and personnel in a timely manner across an international border crossing to help respond to fires has always been a challenge. It requires a coordinated effort among a wide range of agencies and organizations. Binational training and exercises with first responders, customs officials, other government agencies, military, industry and the public have laid the groundwork for efficient responses -life

Binational

When a major tire fire sent dangerous billows of smoke from Agua Prieta, Sonora, into Douglas, Arizona, in December 2017; Douglas firefighters crossed the border and helped put it out in four hours. Binational training and tab-

> *Thanks of the city of Douglas, Arizona, who have participated as instructors to enrich ur AZMAT nowledge. ith his we re repared or ny mergency. ur aim is to protect the communities in our sister ities. hanks o PA or roviding us with the equipment since, due to its high cost, it is out of our reach. Thanks for trusting and believing in the firefighters*
>
> **Lieutenant H.**

Parti cipants

letop exercises conducted four months prior to the fire greatly assisted in increasing the efficiency of the response and reducing the scale and impact of the incident. Additionally, border patrol at the port of entry on both sides provided timely crossings to the binational firefighters.

The binational collaboration with the addition of the Douglas firefighters prevented the fire from growing larger and potentially crossing into the U.S. and reduced the amount of smoke that can cause respiratory problems for sensitive populations such as children, elders and

aining

A 200-hour HAZMAT Tech training for Douglas and Agua Prieta firefighters has been ongoing on weekends and will finish up by Fall 2018. As a result of this training, the Fire Department of Douglas will have additional HAZMAT and Prieta will have its first full HAZMAT Tech team. This firefighters will be better trained and equipped to respond to incidents and assist each

n May 26th, 2018, the training course was interrupted and postponed due to a binational response to a tire fire in Agua Prieta. The recently updated Sister City Contingency Plan ilized where the Douglas Fire Department assisted in getting the fire under control in under three hours.

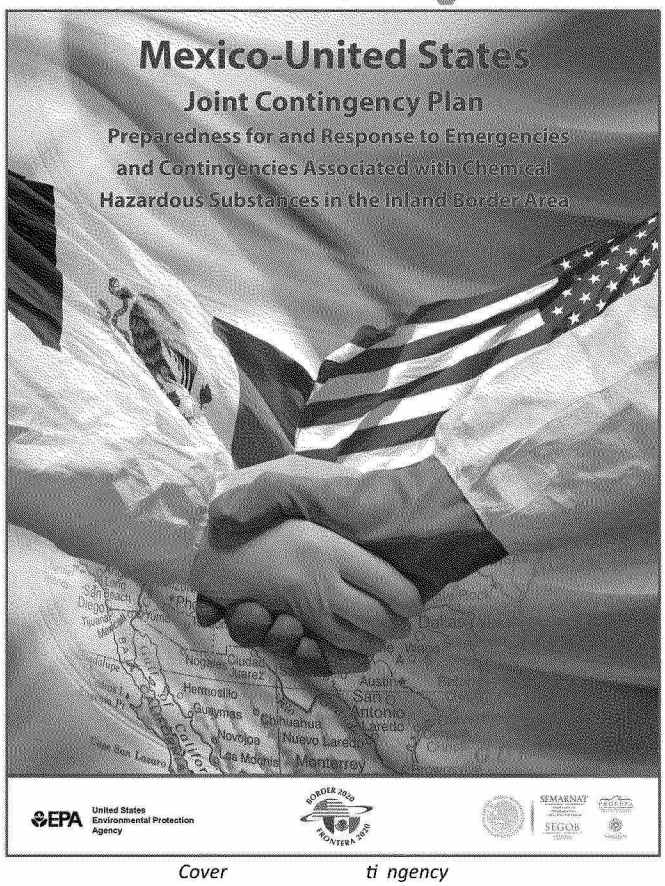
Gerardo Romo, a firefighter of the Douglas Fire Department, commented: "Thanks to the binational efforts and the HAZMAT class being presented been able to respond to incidents in a more prompt and efficient way. In the past, Agua Prieta Fire Department had willingly attended to fire mergencies nd howed heir est fforts; however, ow hat hey re eceiving he AZMAT training by Douglas Fire Department, they understand the need of proper personal protective quipment o espond nd ace he isk f each vent uch s he ire ires. ersonally saw the firefighters using the proper respiratory protection equipment during the tire fire that th".

Enhance eparedness or vironmental Response der ogram

Chemical and other hazardous substances emergencies do not respect international boundaries. Preparing for a possible emergency in the border region improves the ability to respond to incidents and protect the environment and public from hazards that could result in serious

Annex II of the 1983 La Paz Agreement established the U.S.-Mexico Joint Contingency Plan - nation mechanism for protecting human health and the environment and responding to significant chemical and oil contingencies or emergencies that affect the inland border area between the U.S. and Mexico. Two previous versions f he exico-U.S. CP ave een evised and updated. Most recently, on November 17, 2017, in Mexico City, the most up-to-date version of the JCP was signed by the Secretariat of Environment and Natural Resources (*Secretaría de Medio Ambiente y Recursos Naturales* [SEMARNAT]), through the Office of the Federal Deputy Attorney of Industrial Inspection (*Procuraduría Federal de Protección al Ambiente* [PROFEPA]) and the National Coordination for Civil Protection within the Secretariat of Interior (*Secretaría de Gobernación* SEGOB]). Previously, for the U.S., EPA's Office of Emergency Management (OEM) signed the updated JCP.

The updated JCP has a robust binational notification system that has been restructured to reflect lessons learned from actual emergencies and notification drills. The changes to the notification system were coordinated with the U.S. National Response Center (NRC), Mexico's National National - tem of Civil Protection (*Centro Nacional de Comunicaciones / Sistema Nacional de Protección Civil* CENACOM]) nd ROFEPA s ell s ith EPA's



Cover ti ngency

The ability to plan and prepare binationally improves the probability of adequately responding to incidents and protecting the environment and public from exposure to harmful contaminants and possible serious environmental or health impacts. This binational partnership is also increasing emergency response capacity through training events designed to enhance cooperation, strengthen binational contingency plans at the local, state, regional and national levels to reduce the risks of emergencies and disasters throughout the border region.

FOSTERING ENVIRONMENTAL STEWARDSHIP

The ant cross-border t consumer goods and hazardous materials desti ned for recycling ordisposal. When mismanaged, the hazardous materials pose an immediate transboundary environmental health threat. In response, federal, state, and local enti ti es are partnering to conduct nd rtand south-bound surveillance, provide cross-border compliance assistance, and improve access to informati on about potenti al industr sources of toxic substances through rainings nd orkshops. hese acti ons increase transboundary compliance, foster environmental stewardship, and reduce overall risks posed by hazardous waste and

Legislative eform vironmental ducation in o edo, amaulipas.

The Autonomous University of Tamaulipas UAT, y ts cronym n panish) eceived Border 2020 Program grant to continue educating border communities on the environmental challenges (i.e. water pollution, urban solid waste, fats-oils-grease) that persist in this geographic region. The project focused on the following

Web ntal regulati ons ti es es maulipas

- Educate school students and environmental municipal inspectors about the most common environmental challenges in the region.
- Update the municipal environmental legislation for environmental protection in Nuevo Laredo and some of the surrounding municipalities and present it to the city
- Create an online database with the existing environmental regulations or ordinances of all the border sister cities within

The project resulted in environmental conservation training to over 2300 students, 50 public school directors, and 20 environmental inspectors of the city of Nuevo Laredo. Additionally, the project aided in the development and delivery to municipal authorities a proposed new ordinance of "Territorial Ecological Planning" of the Municipality of Nuevo Laredo, Tamaulipas. Lastly, the municipalities of Ciudad Mier, amargo, iménez nd aumave n amaulipas adopted environmental ordinances that will

Port of Entry Inspectors Safeguarding

Enforcing the Resource Conservation and Recovery Act's (RCRA) import/export regulations protects public health and the environment
waste and materials being mishandled and spilled. It also reduces the amount of binational "scam" businesses who implement illegal practices, creating unfair business competition. EPA funds California's Department of Toxic Substances (DTSC), a Border 2020 partner, to safeguard -Mexico

DTSC and San Diego County inspectors work closely with Customs and Border Patrol (CBP) to conduct surveillance and enforce compliance to ensure hazardous materials and waste products are safely transported across the orts f ntry POE) nd nward o heir final destination between the U.S. and Mexico. These HAZMAT trained inspectors work with U.S. ustoms AZMAT nspectors nd erve s part f he mergency esponse eam, irst line of defense in the event of a hazardous spill or accident at the POE. DTSC and the San Diego County, CBP,
in special operations such as inspections of cargo utside f ays nd ours llowed or azardous materials. To increase compliance, the two countries provide compliance assistance outreach and training to facilitate the U.S. and Mexico's industries to understand regulatory requirements.

On June 20, 2018, with funding from the Border 2020 Program and RCRA program, DTSC hosted an import/export workshop in Tijuana, Baja California, in coordination with SEMARNAT, PROFEPA, and Baja California's Secretariat of Environmental Protection (SPA, by its acronym in Spanish), for Mexican hazardous waste and special waste industrial generators operating in Baja California. The workshop focused on import/export requirements including: transport, new electronic manifest system and verification, defining hazardous waste and materials, and differences between federal and state requirements. Nearly 200 people representing industry, government, and academia attended, demonstrating the demand for this type of information and industry willingness to comply.

Att endees

Based on the last repor f he .S.-Mexico Consultative Mechanism, 33 Mexican businesses are permitted by SEMARNAT to treat, store or dispose hazardous waste generated by the hundreds of businesses in the region. Offering these hazardous waste compliance workshops in Tijuana assists industry and informs key stakeholders on compliance requirements for U.S. regulations, ultimately protecting

ADVOCATING ENVIRONMENTAL HEALTH

Environmental health focuses on how the natural and built environment affect human health and how it can be managed to improve quality of life. Our most vulnerable populati ons such as children the elderly and those with respiratory ssues re ft en he ostimpacted by the combinati on of poo indoor and outdoor air quality, contaminated water, unmanaged waste and other environmental conditi ons. The Border 2020 Progam and its partners have supported binati onal environmenta health conferences, train-the-trainer acti viti es for promotoras(community health workers), interacti ve mapping applicati ons to identi fy environmental challenges andplement soluti ons and othe key public xico

Teaming o ess -Border disease ownsville, exas.

In 2016, the Zika outbreak in the continental United States emerged as a significant threat to the public. In November of that year, the
case
within the state. The City worked with the Center for Disease Control (CDC), the Texas Department
County and Brownsville's Health Departments to learn more about the transmission and precautions

In 2017, EPA partnered with the City of Brownsville Health Department to identify hotspots and the factors that led to the spread of *aedes aegypti*
a holistic approach to identify the underlying conditions that allow mosquito breeding and how to prevent it. The project mapped the risk areas ithin he ity y ooking t xisting nvironmental data coupled with socioeconomic and mosquito data. To date, the city is using a crowdsource application platform in which residents can report potential mosquito breeding sites and upload georeferenced photos. The website also provides recommended actions that residents can take to combat mosquito risk.

The City of Brownsville Health Department is also working with *promotoras*, who serve as public community liaisons, to educate residents through a train-the-trainer model. The project is ongoing and researchers at EPA have presented their initial findings at a conference literature

> ***We combined environmental data (land cover, precipitation, and temperature) with socioeconomic and mosquito activity data in order to paint a more accurate picture f isk. o ur nowledge, his s he first vector mitigation study to take into account both 1x1 meter land cover data and***
>
> **Pai-Yei**
> **Project's A**

EPA ages o arget Children's vironmental

According to the World Health Organization, in 2012 it was estimated that 1.7 million children nder he ge f ive ied ue o nvironmental
-Mexico border are particularly vulnerable due to the region having higher than the U.S. national verage ates or hildren iving n overty, being uninsured, and having chronic diseases (Pan American Health Organization, 2014).

Over the past several years, partnerships between PA's ffice f hildren's nvironmental Health, the U.S.-Mexico Border 2020 Program, the U.S.-Mexico Border Health Commission under the U.S. Department of Health and

> ***Families in Nogales, Arizona are very happy with the healthy homes evaluation and especially with the smoke alarms installed by Sonora Environmental Research Institute, Inc. (SERI) staff. Many families mentioned that Nogales does ot ave any hildren's environmental health programs available to low -income families, and they are grateful for this opportunity to participate in the program.***
>
> **Jacobo**
> **SERI**

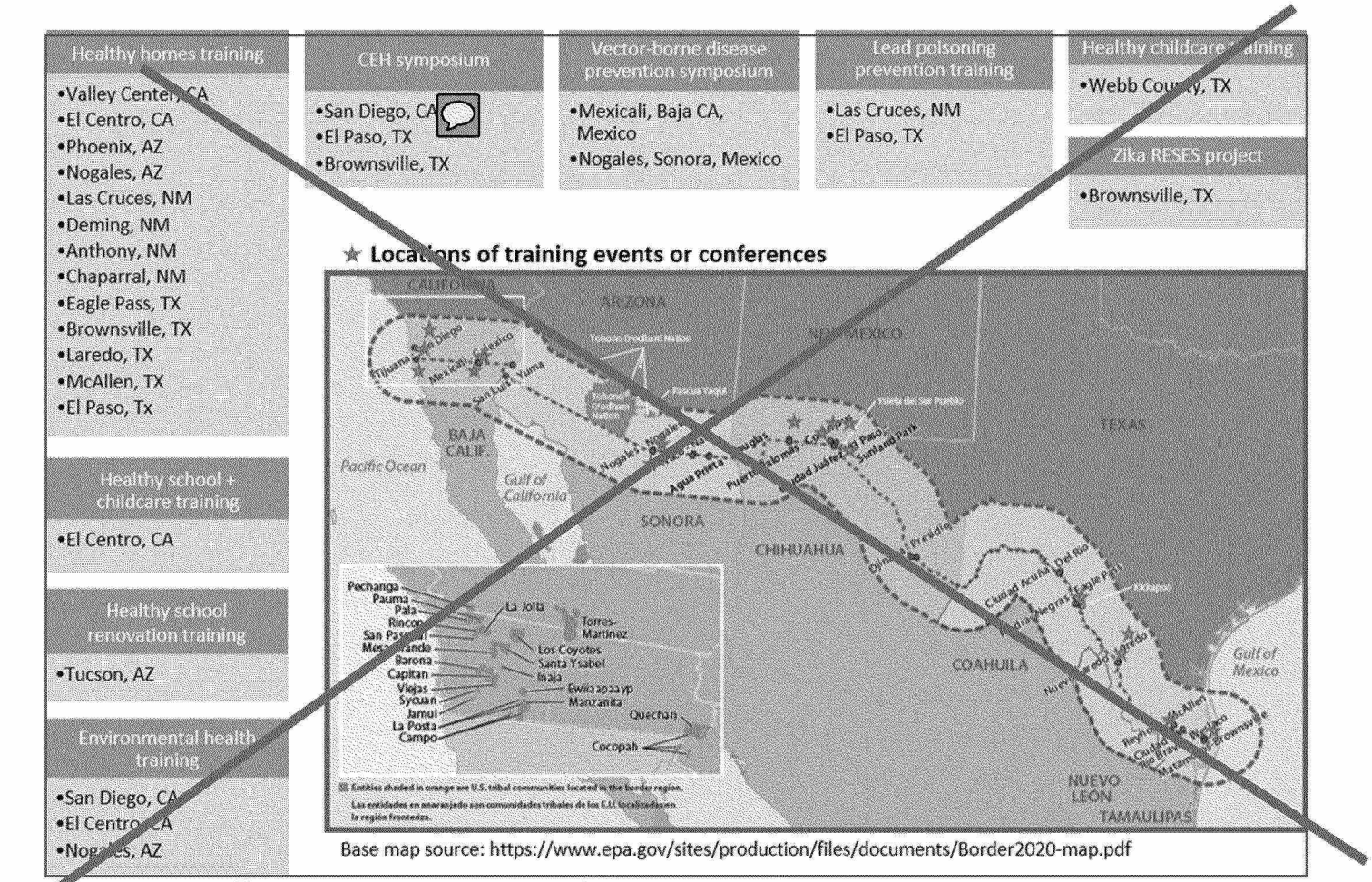


Figure ti es g

Human Services and local organizations, have worked on collaborative projects to identify environmental health needs and provide opportunities or ocal ction o mprove he ives f children living along the U.S.-Mexico border. These opportunities have included three children's health symposiums from south Texas to California, as well as federal grants to educate families, community health workers, educators and medical professionals (Figure 1) on how to address

In 2018, EPA awarded more than $214,000 USD to fund five projects aimed at addressing children's environmental health in border ommunities n exas, ew exico nd Arizona. These five projects addressed environmental health issues related to lead-based paint, indoor air quality, and integrated pest management.

Many of these projects are establishing new ways of improving current environmental health programs and initiatives for agencies who work within communities located in the U.S.-Mexico border region. These projects will train nearly 350 specialists, including community health workers, childcare givers and medical providers, and reach over 2,000 community members on environmental health topics such as improving indoor air quality, reducing lead-based paint exposure and implementing integrated pest management strategies. Through these projects, and continued leadership from border communities, children's environmental health

> *Chronic diseases such as asthma, cardiovascular diseases, and diabetes are linked to air pollution. We will provide education on a variety of environmental hazards to* promotoras, *parents at elementary and middle schools, and pregnant women. The education will provide participants the knowledge needed to identify indoor and outdoor pollutants, harmful chemicals in pesticides used at home, and how they can change or control them without exposing their children*
>
> Genny
> Texas
> Health

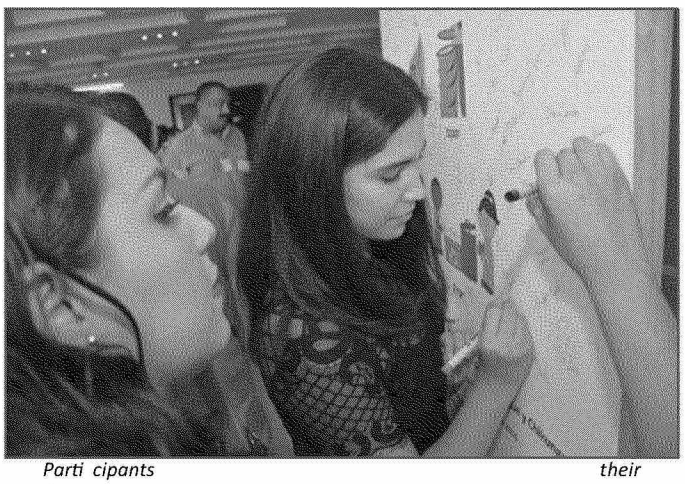
> *Mariposa Community Health Center is excited to have been awarded this funding. Protecting our children by ensuring a healthy living environment is essential to their long-term health and well-being. These funds will provide education to Health Workers the U.S.-Mexico border to assist them in identifying environmental pollutants and train parents and caregivers in appropriate methods to reduce or eliminate in*
>
> Ed
> CEO,

> *The Southwest Center for Pediatric Environmental ealth s ery leased o ear that we have been awarded this grant. It ill erve o ugment utreach o isadvantaged children on the border from El Paso to Brownsville. Based at Texas Tech University Health Sciences Center in El Paso, we have partnered with colleagues rom he niversity f exas io Grande Valley School of Medicine to extend our reach. The funds will go to production of training guides for* promotoras, *as well as two* promotora *orkshops. t ill ikewise upport he evelopment of -learning used in their new senior medical student elective vironmental*
>
> Director
> Southwest
> Environmental

Responding o a eat der.

Besides the shared environment between the U.S. and Mexico along the border, the Border 2020 Program also recognizes that, "[t]he movement of people and products between the two countries creates a unique binational environment for preventing and controlling diseases spread through food and water, from insects or animals, and between people" (Center for Disease Control, 2018). In response to these risks, the Border 2020 Program has supported efforts to increase awareness and provide training on the use of integrated pest management to prevent the spread of vector-borne diseases, like zika transmitted by mosquitos.

In Fall 2016, two binational environmental health conferences on vector-borne diseases were held in Mexicali, Baja California, and Nogales, Sonora. Partners included: the Autonomous University of Baja California (UABC, by its acronym in Spanish), the Technical Institute of ogales ITN, y ts cronym n panish), *El Colegio* nter for Disease Control (CDC) and their Mexican counterpart, the National Center for Preventive Programs and Disease Control (CENAPRECE, by its



Parti cipants their homes r.

Over 360+ people attended, such as medical students, faculty, health practitioners, government officials, and 30 vector borne disease experts. Key topics included preventive measures to combat Zika and other vector-borne diseases, integrated pest management strategies, and the appropriate usage of insect repellants.

In 2017, to confirm long-term impact of the events, the venue hosts (UABC and ITN) contacted the attendees and learned three key findings:

- After the symposia, three out of four respondents shared the environmental and public health information they learned with
- In half - ents - or
- Of critical importance, nearly half of attendees have started pouring standing water out of flower pots to eliminate mosquitos' eggs, thereby reducing breeding

As seen by the evaluation, the conferences have increased knowledge and influenced behavior. To learn more about these events, please visit the U.S.-Mexico Border 2020 webpage

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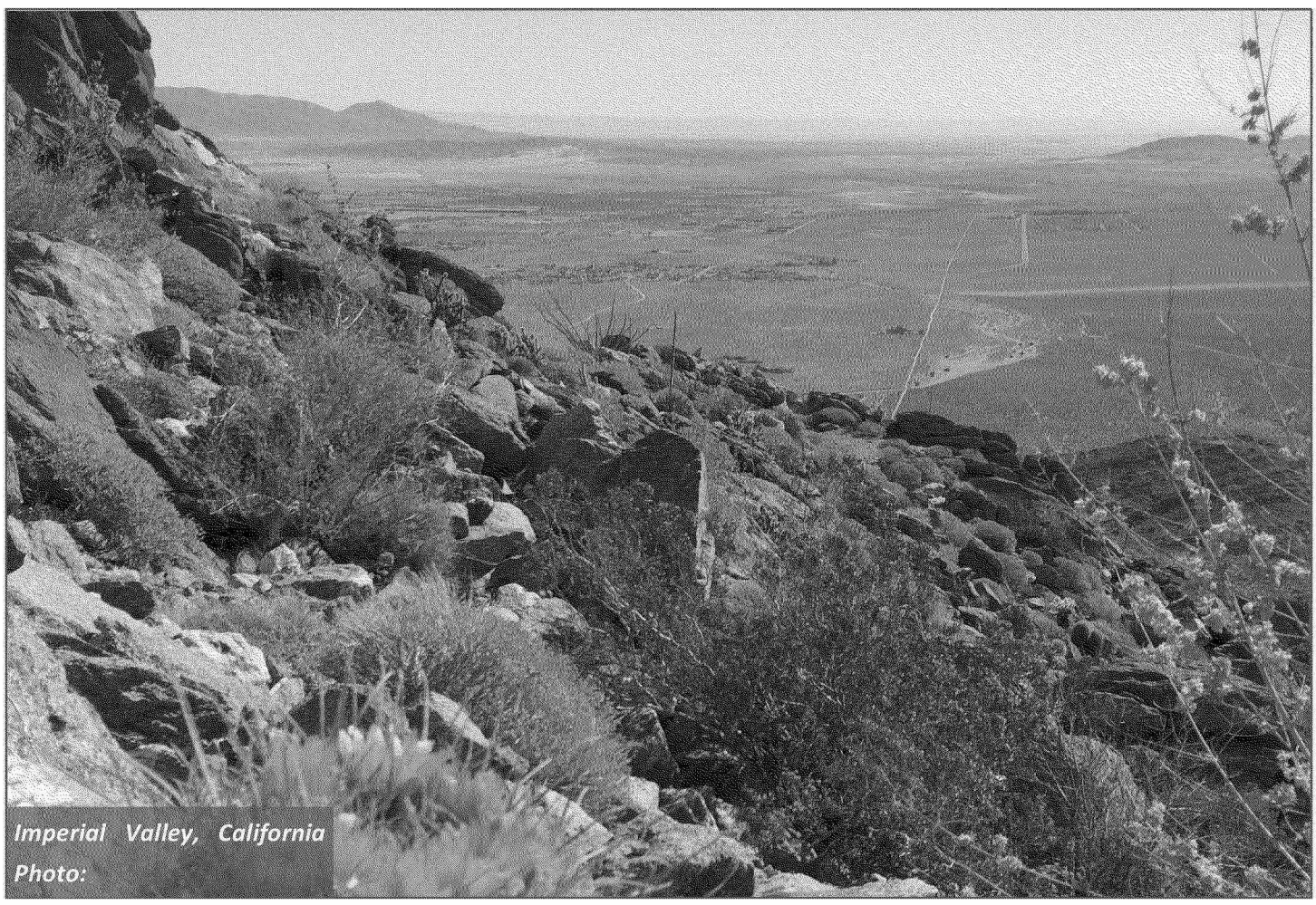
MISSION TATEMENT

As a result of the partnership among U.S. Border Tribes and federal, state and local governments in the United States and Mexico, the mission of the Border 2020 Program o:

Protect the environment and public health in the U.S.-Mexico border region, consistent with the principles of sustainable .



Imperial Valley, California
Photo: